



Effect of Educational Intervention on Improvement in Obesity Related Knowledge and Awareness among School Going Adolescents: A Questionnaire Study

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INTRODUCTION: Obesity is an abnormal or excessive fat accumulation and is considered as a complex, multifactorial chronic disease.

AIM: To access the changes in knowledge of obesity following educational interventions among school going adolescents.

MATERIALS AND METHOD: A quasi-experimental study was conducted among 157 school going adolescent students of two private schools. (78 from control school and 79 from intervention school). A pre-designed questionnaire was prepared which included ORK-10 (Obesity Risk Knowledge Questionnaire). An integrated educational package for obesity was prepared and used for educational intervention. After one year, data were collected to assess the changes in knowledge related to obesity.

RESULTS: A significant increase was observed in the total score in the students of intervention school from baseline to one year follow up. A significant improvement in knowledge regarding factors related to obesity among the students of intervention group was also reported.

CONCLUSION: The study concluded that educational intervention at regular intervals resulted in good outcomes of knowledge, attitude and awareness towards obesity.

KEYWORDS: Obesity, Knowledge, Quasi-Experimental

INTRODUCTION

Obesity is an abnormal or excessive fat accumulation that presents a general health risk. It is considered as a complex, multifactorial chronic disease. Alteration of the body's fat stores occurs due to imbalance of energy intake and expenditure. A study conducted in 2010 showed that globally, the number of overweight children was estimated to be over 35 million in developing countries and 42 million in developed countries.¹ Body mass index, which is calculated as body weight in relation to height, is used in categorizing obesity, and is defined as a body mass index of $\geq 30 \text{ kg/m}^2$, with overweight categorized as a body mass index of $25\text{-}29.99 \text{ kg/m}^2$. The World Health Organization predicted obesity as an emerging epidemic in the late 1990s. In current scenario, almost 1.9 billion people are now overweight, of whom 650 million are obese.²

The prevalence of obesity among age group of 5 to 19 years range between 3.6 and 11.7% and it is expected that by 2025, around 17 million obese children will be there in India.³ To overcome the global menace of obesity and its associated problems among children and adolescents, educational interventions in school

have been opted as an important strategy to improve knowledge and awareness related to obesity which in turn could prevent it. Previous researches have shown positive outcomes of educational intervention towards healthy behaviours.^{4,5} So, this present study was planned to evaluate the outcomes of educational intervention on knowledge and awareness of obesity among school children.

MATERIALS AND METHOD

A quasi-experimental study was conducted on adolescent students of two private schools of Patiala city, Punjab over a period of two years. A total of 157 students were selected for study (78 from control group from one school and 79 from intervention group from other school). Written permission was taken from head of the institutions and guardians of the adolescents. A predesigned questionnaire was used for the study. The questionnaire used in the study was ORK-10 (Obesity Risk Knowledge questionnaire) and some other questions were also included to assess various other causative factors leading to obesity. Each question answered correctly on the ORK-10 form is equal to 1 and there were no negative scores. The minimum score was



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0 and the maximum score was 10. Those who answered ≥ 5 questions correctly were considered to be aware and those who answered < 5 questions correctly were considered to be unaware. To improve the knowledge, attitude and awareness of students towards adverse effects and prevention of obesity, an integrated educational package was prepared. Control school students were given printed educational materials in the form of a carefully prepared poster. Both poster and educational package were prepared before recording the baseline data. The other group of school students were given educational intervention by an integrated educational package. Intervention was done by arranging interactive sessions with the students, arranging powerpoint presentations regarding awareness of obesity. A total of 8 interactive sessions were conducted over two months period for intervention school group. On completion of the intervention, data were collected to assess the changes in knowledge, attitude, behaviour towards diet and physical activity. Follow up data were collected after 1 year of intervention.

RESULTS

A total of 157 students were included in this study. The age of school going adolescents included in the study varied from 12-15 years. The mean age was 13.56 ± 0.72 years. About 55% of participants were boys and 45% were girls. At baseline, mean score of ORK-10 of Intervention school group was 5.17 ± 1.68 and control school group was 5.05 ± 1.34 . During follow-up after 1 year, mean score of ORK-10 of the students of control school was 5.22 ± 1.21 and in intervention school group, it was 6.11 ± 1.33 (Table 1). There was significant increase in total scores in intervention group.

Awareness measured by ORK-10 have been improved during follow-up. It was seen that 68% students in control school and 87% students in intervention school were considered to be aware about obesity as they had scored 5 or more. Significant improvements were seen regarding awareness among the students in intervention group (Table 2). Response from the students of intervention group regarding knowledge of abnormal body weight were overeating (67.1%), genetic

QUESTION	Control (78)		Intervention (79)	
	Baseline	Follow up	Baseline	Follow up
1. Person with a 'pot-belly' shaped abdomen has an increased risk of getting diabetes	67	69	68	72
2. Obesity increases the risk of getting bowel cancer	44	44	46	49
3. An obese person who gets diabetes needs to lose at least 40% of their body weight for clear health benefits	10	15	27	37
4. Obese people can expect to live as long as non-obese people	53	51	53	60
5. Obesity increases the risk of getting breast cancer after the menopause	48	45	41	45
6. Obesity is more of a risk to health for people from South Asia (e.g. India and Pakistan) than it is for White Europeans	39	43	42	50
7. There is no major health benefit if an obese person who gets diabetes, loses weight	40	37	40	49
8. Obesity does not increase the risk of developing high blood pressure	48	46	56	58
9. It is better for a person's health to have fat around the hips and thighs than around the stomach and waist"	21	25	25	35
10. Obesity increases the risk of getting a food allergy	20	23	28	39
Total Score	5.05 $\pm$ 1.34	5.22 $\pm$ 1.21	5.17 $\pm$ 1.68	6.11 $\pm$ 1.33

Table 1. Comparison between two groups (Baseline Vs Follow up) (ORK10)

Control (78)		Intervention (79)	
	Baseline	Follow up	Follow up
Aware (Score ≤5)	50	53	69
Not Aware (Score >5)	38	35	10

Table 2. Awareness regarding Obesity (Baseline Vs Follow up) (As per ORK-10)

factors (32%), low physical activity (81%), eating habits during childhood (75%). (Table 3). When the students of the intervention group were asked about various foods which can promote weight gain, 93% of the students of intervention group reported oil/ghee/dalda as the major factor (Table 4). Knowledge regarding health problems due to excess body weight improved significantly among students of both schools ($p<0.05$). Response from the students of intervention school were breathing problems (60%), difficulty in getting up from squatting position (43%), inability to walk (53%), back pain (61%), hypertension (55%), diabetes (63%), arthritis (66%) (Table 5). It was observed that 92% students of intervention school told avoiding junk foods can prevent obesity (Table 6). Knowledge regarding healthy practices to prevent obesity was improved among students of both schools ($p<0.05$).

Control (78)		Intervention (79)	
	Baseline	Follow up	Follow up
Overeating	46.2	48.3	67.1
Genetic factors	10	18.2	32
Less Physical Activity	40.5	53.2	81.4
Eating habits in childhood	15.1	21.3	75.7

Table 3. Knowledge regarding factors contributing to abnormal body weight

Control (78)		Intervention (79)	
	Baseline	Follow up	Follow up
Fried	44.2	46	45.5
Sweets	35	40	12
Ghee/Oil/Dalda	55	57	57
Ice Cream	20	21	18

Table 4. Knowledge regarding factors contributing to abnormal body weight

DISCUSSION

In this study, the mean age of the study participants was 13.56 ± 0.72 years. Among our study population, about 55% of participants were boys and 45% were girls. Several studies conducted highlight less knowledge among school going children regarding obesity. A study among adolescents conducted in a school reported around 46.4% of adolescents possessing less knowledge on obesity.⁶ Also in another study, it was observed that knowledge about childhood obesity among school children was moderate and a negative attitude towards obesity was reported.⁷ Another study reported limitation of knowledge of adequate nutrition and unhealthy eating practices among adolescents.⁸ In our study, after the intervention, there was a significant improvement in mean ORK-10 scores. Also, awareness regarding obesity increased significantly among the students of intervention group. In another study done among the school students, the mean ORK-10 score came out to be 3.15 and 25.4% were considered to be aware about obesity, although the ORK score values differed from our study. This variation could be due to the difference of region in which this study was conducted.⁹ Many other studies have also used ORK-10 score to assess knowledge of obesity among different population groups.^{10,11}

CONCLUSION

This study reported that educational intervention at regular intervals resulted in good outcomes of knowledge, attitude and awareness towards obesity. Regular educational intervention is a good, efficient, cost-effective method to impart knowledge among students regarding obesity and to make aware of the growing generation regarding the associated adversities surrounding obesity.

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	Control (78)		Intervention (79)	
	Baseline	Follow up	Baseline	Follow up
Breathing difficulty	38	48	40	60
Difficulty in getting up from squatting	25	32	28	43
Inability to walk	45	65	43	53
Back Pain	50	60	48	61
Hypertension	35	50	33	55
Diabetes	36	48	33	63
Arthritis	37	49	36	66

Table 5. Knowledge regarding health problems due to excess body weight

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	Control (78)		Intervention (79)	
	Baseline	Follow up	Baseline	Follow up
Avoid Fried	48	50	46	86
Avoid Junk	60	65	62	92
Increase fruit/vegetable intake	55	57	51	81
Exercise	51	65	49	91
Restrict high calorie diet	46	66	47	77

Table 6. Knowledge regarding healthy practices to prevent obesity

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